

**Exploration Examination Report
June 21, 1978**

Confidential Claim Retracted

Authorized by: SC

Date: 6/26/13

**The Anaconda Company
Jackpile-Paguete Mine
Pueblo of Laguna Uranium Leases 1 and 4
Townships 10 and 11 North, Range 5 West, NMPM
Valencia County, New Mexico**

**U. S. Geological Survey
Conservation Division
P. O. Box 26124
Albuquerque, New Mexico 87125**

**Dale C. Jones
Mining Engineer
June 28, 1978**



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CONFIDENTIAL

June 21, 1978, the writer inspected The Anaconda Company's Jackpile-Paguate Mine to examine and discuss the development drilling that is being conducted in conjunction with the lessee's mining operations. Ernest Wylie, Don Earnest, Bill Feirn, Ron Beck and Ike Peacock of Anaconda all attended both the inspection and the discussion session.

The Jackpile-Paguate Mine is located within Pueblo of Laguna Leases 1 and 4 which contain approximately 7550 acres in Townships 10 and 11 North, Range 5 West within the Laguna Indian Reservation, Valencia County, New Mexico. Both open-pit and underground mining operations have been conducted since 1952, and the site is the largest producing uranium mine in the United States, and perhaps in the world. By early 1977, the exploration and development drilling conducted in conjunction with these mining operations had produced almost 18,500 boreholes within the leases. The majority of these boreholes have been removed by open-pit mining and no longer exist, but many boreholes have been completed outside the open-pit mining areas and in areas where underground mining will occur.

Development drilling continues within the leases to further delineate known ore reserves and has also resulted in the discovery of new ore bodies or unknown extensions of existing ore bodies. Most of the recent drilling has been concentrated on Black Mesa to further delineate ore bodies that will be mined through underground workings, but some drilling has occurred within or on the perimeters of the open-pits. At the time of this inspection, three drilling rigs were in operation. Two rigs were drilling in the Paguate and North Jackpile pits on 25- and 100-foot centers respectively while only one rig was drilling on Black Mesa on 50-foot centers. The two rigs in the pits had recently been drilling on Black Mesa on 50- and 25-foot centers in the P-18 area.

In 1977, it was learned that Anaconda was not using mud pits to contain the drilling circulation medium but was discharging the fluid on the surface. It was also learned that the completed boreholes were not being plugged at the surface as required by the USGS and that this practice had ceased sometime in 1968. Anaconda was instructed to begin using mud pits immediately and to begin plugging boreholes that would remain after mining (boreholes in underground mining areas and in areas outside open-pit mining projections). Anaconda was also advised that all other, remaining boreholes must be systematically located and, if necessary, plugged. This inspection was conducted to verify compliance with these instructions.

During the inspection, it was observed that Anaconda has been and is now using earthen mud pits to contain the circulation medium. Each borehole site contains two pits which each measure about 4-feet wide by 6-feet long by 5-feet deep, and the pits are also used to mix the TD mud which is put

into each borehole to control ground water movement. This TD mud meets or exceeds the specifications of the New Mexico State Engineer. Anaconda is also now plugging each borehole at the surface with 5 feet of concrete and is marking the approximate borehole locations with 1-by 2- by 12-inch wood stakes to which aluminum hole number tags are attached (stapled). Mr. Wylie noted that the plugging of the new holes was delayed by some confusion over a contract for the work, but that matter has been resolved and the plugging is in progress. Reclamation of the drilling sites is being postponed until completion of the close-spaced drilling operations in order to avoid interference.

The locating and plugging of older, open boreholes has not begun pending a special appropriation of funds for this work, but Mr. Wylie stated that he expected the work to begin in early 1979. The use of maps to record the results of this project was discussed, and it was decided that 100 or 200 scale maps would be adequate for areas of intensive drilling while 1000 scale maps would be sufficient for areas of limited drilling. Mr. Wylie will investigate this matter to determine the availability of appropriate, up to date maps for this purpose.

Following the inspection, a discussion was held on the Area Mining Supervisor's recent letter regarding exploration drilling procedures. The writer explained the procedures (copy attached) and also discussed certain of the procedures in relation to Anaconda's operations. Some of the more important items discussed are listed below.

1. Mr. Wylie stated that Anaconda is committed to compliance with procedure 1, but Mr. Peacock believes that the procedure could cause undue operational problems since Anaconda does not have a livestock problem in the mine area. According to Mr. Peacock, the Pueblo of Laguna does not allow livestock within the mining leases, and fines are levied on those who let their stock enter the leases. Mr. Peacock is investigating this matter further in an attempt to avoid the use of procedure 1. If procedure 1 must be implemented, Mr. Earnest stated that he believed that fencing of the mud pits would be the best approach due to the problems associated with pumping of the pits (mud disposal, pump failures, etc.).
2. Although Anaconda has been policing the drilling sites after completion of the drilling, the writer noted that the sites could and should be kept cleaner during the drilling operations. Mr. Wylie agreed that improvement was necessary in this respect. The writer also clarified that the USGS realized that certain equipment maintenance must be conducted in the field and noted that the USGS did not object to such work but to the littering which accompanied it in some drilling operations.

3. The writer clarified that the fencing of water holding ponds as described in procedure 9 did not apply to the mine water holding ponds maintained in the open-pits.
4. Mr. Wylie stated that he felt that all holes drilled on the open-pit perimeters should be permanently plugged, but Mr. Earnest noted that many of these holes are in known open-pit mining areas and that their permanent plugging would be wasteful. The writer pointed out that temporary plugging of such holes would be sufficient until the holes were consumed by the open-pit workings.
5. The writer clarified that only materials such as surface casing need be cut off flush with the ground surface. This requirement does not apply to permanent borehole markers if a company choose to employ such. The writer noted that Anaconda's borehole markers were preferred to permanent markers such as steel and plastic pipe.

After the discussion session, the writer consulted with Mr. Erwin Green of Anaconda about the annual open-pit mine map which was submitted. The writer's misunderstanding's about the map were resolved, and the map complies with the applicable requirements.

(ORIG. SGD.) DALE C. JONES

Dale C. Jones
Mining Engineer

Original to: Superintendent, Southern Pueblos Agency, BIA
cc: Governor, Pueblo of Laguna
Chief, Branch of Mining Operations, USGS
Through: Conservation Manager, Central Region, USGS
Files (Laguna 1 and 4)

PROCEDURES

1. When drilling of a specific hole is completed, the mud pit must be immediately fenced with a three-foot sheep fence or adequately pumped to allow immediate backfilling without the spillage of drilling mud.
2. If mud spills do occur, they must be broken up either mechanically or manually, regardless of their location.
3. Livestock have been observed drinking from mud holding ponds. All such ponds must be fenced to prevent this.
4. The size of the drill sites must be kept to a minimum, especially in the timbered areas.
5. Reclamation of the sites must include recontouring to the original topography and reseeding. Large mounds of dirt must not be left at the perimeter of the site. Displaced timber must be freed from rock and dirt so that local people may use it for firewood. Cutting samples must be buried or spread out.
6. All areas must be kept free of trash at all times. A trash pit or portable trash container should be provided at each site. Maintenance of equipment will not be conducted in the field except at established service areas.
7. The construction of new roads will be kept to a minimum, especially on canyon walls or mesa sides and in timbered areas. When access roads have been constructed to a site, driving across country is not allowed. When 6-inch deep ruts develop during wet conditions, operations must cease. New roads must have their berms removed and must be reseeded as soon as they are no longer in use.
8. Existing roads used by the drillers will be maintained in good condition.
9. All water holding ponds will be fenced. A three-foot sheep fence is acceptable.
10. Holes that are left open for additional logging must have a temporary cover placed over them until they are permanently abandoned.
11. Many cement surface plugs located in drainages have been washed out during heavy rains. In the future, all holes drilled in areas susceptible to erosion must have plugs extending at least 5 feet into bedrock or have plugs at least 10 feet in length, whichever is less.
12. It is now preferred that all surface plugs and markers be flush with ground level. Materials such as casing should be cut off flush with the ground. If you wish to place an above-ground marker in the surface plug, a 2 X 2-inch wood hub, extending about 24 inches above the ground, is preferred.